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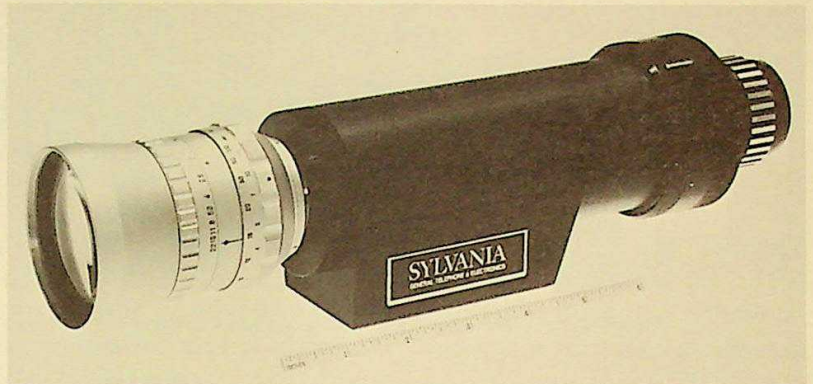
**GTE SYLVANIA**  
INCORPORATED**NIGHT  
VIEWING  
DEVICE**  
**Model 220**

Figure 1. Night Viewing Device with 75 mm fixed focal length lens.

The GTE Sylvania Model 220 Night Viewing Device is a passive device which amplifies light like a loud speaker system amplifies sound. It does not need supplemental illumination like infrared or spotlights, because it uses illumination that is always available such as starlight, moonlight, and sky glow. The device permits an observer looking through its eyepiece lens, to see events occurring at scene illumination levels lower than starlight.

The GTE Sylvania Model 220 permits an observer to see at night as if it is daylight. It is adaptable to TV cameras, 16 mm motion picture cameras, and 35 mm photographic cameras for recording evidence through video tape recordings, motion picture film, or photographs.

The Model 220 utilizes an Automatic Brightness Control (ABC) which automatically adjusts the gain to the illumination level of the scene being observed. The observer does not have to divert his attention to making adjustments while looking through the unit. This same ABC feature protects the device in the event the observer accidentally looks into a nearby bright light by reducing the gain so that the sensors will not be damaged.

**BATTERY POWER SOURCE**

The Model 220 operates from two small size "A" batteries which are easily replaceable. A small coin is all that is needed to remove the screw holding the bottom plate on the base of the battery case. The size "A" batteries are inexpensive, have a long life, and are easily obtainable.

**LENS**

The GTE Sylvania Model 220 Night Viewing Device is designed with a standard "C" mount so that any lens of that type can be utilized with the unit. Special telephoto and zoom lenses already in the possession of police departments and industrial security forces may be used with the Model 220.

A selection of one of two lenses is included with the purchase of a Night Viewing Device and is included in the unit price. Either an f/1.4, 75 mm focal length lens, or an f/2.5, 20 to 100 mm zoom lens can be selected with the Model 220. See figures 1 and 2.

Numerous other lenses are available for long distance or close-up wide angle viewing. Some of the lenses are listed inside. Refer to figure 5 on the back cover of this brochure to determine the optimum field of view and the size of the area being viewed using lenses with different focal lengths at the same camera/viewer to scene distance of 300 feet. Most uses of the Model 220 will not require this great a distance.

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Figure 2. Model 220 Night Viewing Device with 20 — 100 mm zoom lens.

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#### Auxiliary Lens Chart

Field of View		Focal Length	Field of View		Focal Length
Very Wide	72°	12.5 mm	Extreme Telephoto	3.4°	300 mm
Very Wide	40°	25 mm	Extreme Telephoto	2°	500 mm
Normal	20°	50 mm	Zoom Lenses	10° to 50°	20-100 mm
Normal/Telephoto	15°	75 mm		10° to 40°	25-100 mm
Narrow/Telephoto	10°	100 mm	Extenders	2x	
Narrow/Telephoto	8°	135 mm			
Narrow/Telephoto	7°	152 mm			

#### INFRARED

The Night Viewing Device can be used to see in total darkness using invisible near IR illumination. However, its primary advantage is that it can be used in open fields, alleys, etc., without requiring special IR illuminations. In normal use, its range is not reduced to the location of the IR spot lights.

#### REPLACEMENT PARTS

GTE Sylvania has used the highest quality components of which replacements can be procured directly from GTE Sylvania or other local sources.

#### SAFETY FEATURES

The Automatic Brightness Control protects the device against accidental viewing of highly illuminated scenes. Special safety insulators are included to protect the operator from high voltage.

The observer using the GTE Sylvania Night Viewing Device cannot be detected because the rubber shield around the eyepiece prevents light from illuminating his face and making him stand out in the dark.

#### TRIPOD MOUNT

A tripod mount is provided even though the Model 220 weighs only 2.94 pounds complete with the lens. This capability is for prolonged viewing of a single area such as a stake out; or for use with the photographic adapter.

Various sized and shaped pistol grips can be attached to the tripod mount of the Model 220 Night Viewing Device.



## CONTROLS

The sensitivity and gain of the Model 220 is completely automatic, which eliminates the requirement for any electrical controls on the device other than an off-on switch.

The eyepiece lens has a rotating focus adjustment that requires only an initial adjustment. The objective lens has a focus control also which has to be adjusted to compensate for varying viewer to object distances. The lens iris does not have to be adjusted. This compensation is done electrically.

## USE WITH TV CAMERAS

An adapter assembly (see figure 3) is available that permits the Model 220 to be rigidly connected to daylight television cameras. Excellent resolution can be achieved using the Model 220 with GTE Sylvania or any other standard television camera. Hookup and operation of the TV camera/viewer can be achieved in minutes and is easy to perform. Video tape recorders can then be used to record evidence or scientific phenomenon.

## USE WITH PHOTOGRAPHIC CAMERAS

The Model 220 can be rigidly attached to almost all 35 mm photographic cameras. This does not mean holding a camera up to the eyepiece lens, taking a picture through it and hoping for the best. High quality photographs can be made through the unit almost as easily and fast as if the photographs were being made with the camera alone.

A single lens reflex type camera is required so that at night the photographer may see exactly what he is photographing.

The GTE Sylvania Model 220 can also be used to take night 16 mm motion pictures providing the camera has a "C" mount single lens reflex system.

## GENERAL SPECIFICATIONS

Color	Black (for non-detection)
Weight — Complete	1.88 lbs., less lens 2.94 lbs., with lens
Dimensions	8-1/2 inches long less lens 2.62 inches diameter, less battery case
Power Requirements	2 "A" size batteries (Uses Eveready No. E 12N or Mallory RM-12 batteries)
Battery Life	Approx. 40 hours
Light Amplification	35,000 minimum 45,000 typical
Eyepiece Magnification	10X
Resolution (Man-sized target)	
a. Under Moonlight Conditions	1375 feet minimum
b. Under Starlight Conditions	650 feet minimum
Lens Mount	Standard "C" Mount
Tripod Mount	Included

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Detailed Specifications are available upon request.

For additional information and specifications regarding GTE Sylvania night surveillance equipment, contact GTE Sylvania Socio-Systems Products Organization, P.O. Box 188, Mountain View, California 94040 — Telephone (415) 966-3373.



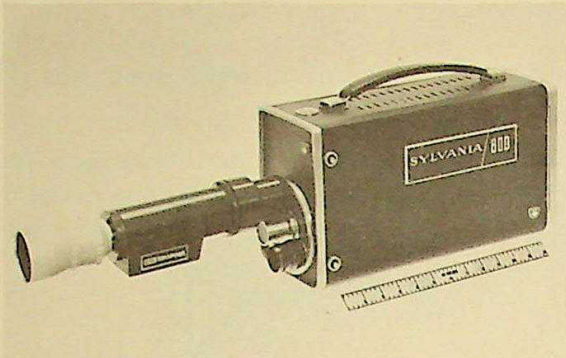


Figure 3. Model 220 Night Viewing Device attached to daylight type TV Camera.

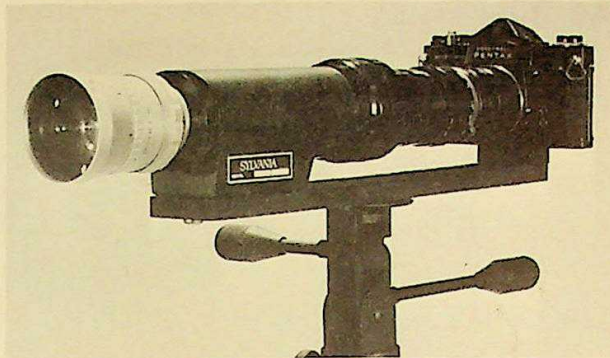


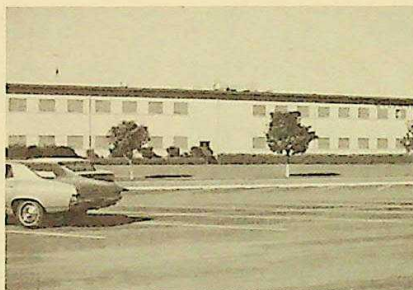
Figure 4. Model 220 connected to a 35 mm photographic camera.

## LENS COMPARISON CHART FOR SYLVANIA MODEL 220 NIGHT VIEWING DEVICE

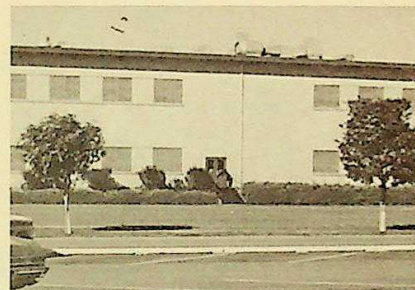
Camera — to — scene distance in all cases is 300 feet



12.5mm lens



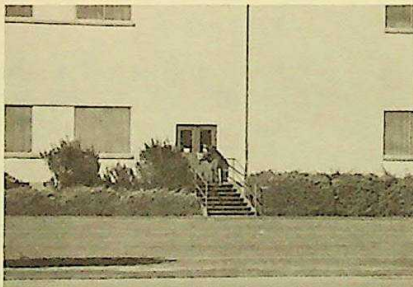
25mm lens



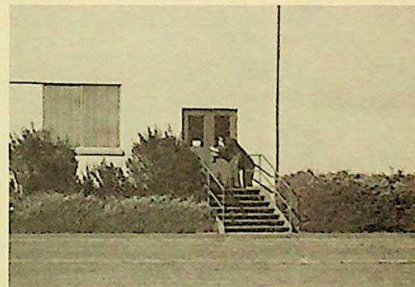
50mm lens or 25mm lens with 2X extender



75mm lens



100mm lens or 50mm lens with 2X extender



135mm lens



300mm lens



500mm lens

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Note: Zoom lenses will provide all of the views shown in the 4 photos ranging from 25mm to 100mm.

Figure 5. Field of view comparison using lenses with different focal lengths